

ABSTRACT OF THE DISCLOSURE

One of pairs of an exciter and a sensor is selected in accordance with the detection signal which is derived from an exciter waveform induced in an artery transmitted therethrough. The pairs of excitors and sensors are arranged on a substrate in various formations. A/D converters are provided to respective detection signals. A frequency of the oscillation signal supplied to the exciter is controlled by various oscillation signal generation circuits. Bandpass filtering for extracting the exciter waveform, low-pass-filtering for extracting a natural blood pressure waveform, phase difference detection processes are provided by a microprocessor, wherein the bandpass filtering and low-pass-filtering processes may be replaced with a bandpass filter and a low pass filter, and their outputs are selected by a switching circuit and supplied to the microprocessor through one a/d converter. The frequency of the oscillation signal is controlled to an optimum frequency by detecting the detection signal and estimating the attenuation, dispersion, phase shift with respect to different frequency and by determining one of the different frequency in accordance with the estimation result. The waveform of the oscillation signal is controlled to an optimum waveform similarly.